

**ABSTRACT**

A dual function medical pad is disclosed for both controlling patient temperature and providing a patient-to-electrode interface. The pad includes a fluid containing layer for containing a thermal exchange fluid circulated therethrough, wherein the medical pad is operable for thermal exchange with a patient through a first side of the fluid containing layer. One or more electrodes are interconnected to the fluid containing layer on the first side (e.g. electrosurgical return electrode(s), EKG electrode(s), pacing/defibrillation electrode(s)). Preferably, an electrical connector is electrically connected to the electrode and extends through the fluid containing layer to a second side thereof. Such electrical connector is interconnected or selectively interconnectable to a signal cable. The pad may further include an adhesive surface which extends over at least a portion of the first side of the fluid containing layer. Preferably, the adhesive surface substantially covers the electrode(s). The adhesive surface may be defined by a conformable layer that is thermally and electrically conductive. Such conformable layer may comprise a first material suspended in a matrix defined by a second material (e.g. a liquid suspended in a polymer matrix).